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CLAIMS

We Claim:

1. A purified and isolated *Int6* gene.

2. A purified and isolated *Int6* gene comprising a nucleic acid sequence according to SEQ ID NO: 3.

3. A purified and isolated *Int6* gene encoding a protein having an amino acid sequence according to SEQ ID No. 4.

4. A cDNA having a sequence according to SEQ ID NO. 3.

5. The cDNA of claim 4, said cDNA having ATCC deposit numbers 97029 and 97030.

6. A method of assaying a sample comprising contacting said sample with at least one nucleotide sequence derived from the *Int6* gene.

7. The method of claim 6, wherein said step of assaying comprises using said nucleotide sequence as a probe in Southern blot analysis.

8. The method of claim 7, wherein said probe used is derived from wild-type *Int6* gene sequence.

9. The method of claim 8, wherein said sequence is cDNA.

10. The method of claim 9, wherein said cDNA comprises the sequence according to SEQ ID NO:3.

11. The method of claim 6, wherein said step of assaying comprises using said nucleotide sequence as a probe in Northern blot analysis.

12. The method of claim 11, wherein said probe is derived from a cDNA having a sequence according to SEQ ID NO. 3.

13. The method of claim 6, wherein said step of assaying comprises using said nucleotide sequences as PCR primers.

14. The method of claim 13, wherein said primers are derived from wild-type *Int6* gene sequence.

15. The method of claim 14, wherein said step of assaying comprises using said primers in PCR-SSCP analysis.

16. The method of claim 15, wherein said primers are selected from SEQ ID NOs: 5 thru SEQ ID NOs: 28.

17. The method of claim 14, wherein said sequence is a cDNA sequence according to SEQ ID NO:3.

18. The method of claim 17, wherein said step of assaying comprises using said primers in RT-PCR analysis.

19. The method of claim 17, wherein said step of assaying comprises using said primers in RT-PCR-SSCP analysis.

20. Purified and isolated primers derived from *Int6* gene sequence, said primers being capable of specifically hybridizing to *Int6* gene sequence.

21. The primers of claim 20, where said sequence is intronic sequence of the wild-type *Int6* gene.

22. The primers of claim 21, wherein said primers have the sequences shown in SEQ ID NOs: 5 to 28 and in SEQ ID NOs: 31 and 32.

23. A diagnostic kit useful for assaying a sample, said kit comprising: primers having nucleic acid sequence selected from the group consisting of SEQ ID NOs: 5 thru 28 and SEQ ID NOs: 31 and 32.

24. The primers of claim 20, wherein said sequence is a cDNA.

25. The primers of claim 24, wherein said cDNA has a sequence according to SEQ ID NO:3.

26. A diagnostic kit useful for assaying a sample comprising: at least one nucleic acid sequence derived from an *Int6* gene having a coding sequence shown in SEQ ID NO:3, said nucleic acid sequence being capable of specifically hybridizing to the *Int6* gene.

27. A method of assaying a sample comprising contacting said sample with antibody directed against *Int6* protein or against peptide fragments derived therefrom.

28. The method of claim 27, wherein said step of assaying comprises immunohistochemical assay

29. A recombinant *Int6* protein having an amino acid sequence according to SEQ ID NO:4, or a peptide fragment thereof.

30. A purified and isolated nucleic acid sequence capable of directing host organism synthesis of *Int6* protein or a peptide derived therefrom.

31. A recombinant expression vector comprising the nucleic acid sequence of claim 30.

32. The recombinant expression vector of claim 31, wherein said nucleic acid sequences is contained in SEQ ID NO:3.

33. A pharmaceutical composition comprising the recombinant expression vector of claim 30.

34. Antibodies having specific binding affinity for *Int6* protein or peptides derived therefrom.

35. The antibodies of claim 34, wherein said antibodies are monoclonal antibodies.

36. A pharmaceutical composition comprising the antibodies of claim 34 coupled to a toxin, radionucleotide or drug.

37. A pharmaceutical composition comprising the recombinant *Int6* protein of claim 29.

38. A vaccine comprising the recombinant protein of claim 28 in a pharmaceutically acceptable carrier.

39. A vaccine comprising the recombinant expression vector of claim 31 in a pharmaceutically acceptable carrier.

40. A method of immunotherapy for a subject having cancer, said method comprising administering to said

subject in an effective amount a pharmaceutical composition according to claim 33.

41. A method of immunotherapy for a subject having cancer, said method comprising administering to said subject in an effective amount a pharmaceutical composition according to claim 36.

42. A method of immunotherapy for a subject having cancer, said method comprising administering to said subject in an effective amount a pharmaceutical composition according to claim 37.

43. A host cell transformed or transfected with the recombinant vector of claim 31.

44. The host cell of claim 43, wherein said cell is prokaryotic.

45. The host cell of claim 43, wherein said cell is eukaryotic.